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physics

A method for quantum key distribution and for transmittng and receiving an optical signal, and a receiver of an optivcal signal for quantum key distribution

About technology

The invention relates to the quantum distribution of a cryptographic key by means of weak optical pulses generated by a laser, or generated by means of a source of entangled photon pairs.

In both protocols, the *prepare and measure* type (such as BB84 or SARG04), as well as based on the entanglement of photon pairs (*entangled-based*) such as E91, it is possible to transmit more than one key bit per each photon recorded in the receiver, which results in the increase of cryptographic key generation rate even in the presence of high losses in the transmission channel.

Thanks to independently encoding multiple qubits in the quantum state of a single photon, as well as using the optical interference in active receivers, the safety of each of the suggested schemes is analogical to BB84, SARG04 or E91 protocols, in which a single photon is able to transmit only a single qubit.

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- Polish patent granted nr 239636
- European patent granted nr EP4107902

Cooperation opportunities:

- Sale of property rights
- Licence
- Partnership for further research and commercialisation

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